



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,351	06/25/2003	Wen Chin Lin	N1085-00147	2589
8933	7590	11/05/2004	EXAMINER TSAI, H JEY	
DUANE MORRIS, LLP IP DEPARTMENT ONE LIBERTY PLACE PHILADELPHIA, PA 19103-7396			ART UNIT 2812	PAPER NUMBER

DATE MAILED: 11/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/603,351

Applicant(s)

LIN ET AL.

Examiner

H.Jey Tsai

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 12-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2812

This application contains claims 12-16 drawn to an invention nonelected claims. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. "Horizontal structure device" and "horizontal structure transistor" is not described in the specification.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cha 2002/0140016 in view of Background of the invention of same reference to Cha 2002/0140016.

The reference(s) teach the features:

Cha discloses a magnetic memory device using two conductive lines 137, 141 (para. 34) to control a combined magnetic field created thereof (para. 21), comprising:  
forming a horizontal structure device/transistor includes layers 121/119/115/117/112 having substantially flat top surfaces, fig. 2A, Cha also teaches at fig.2A, a horizontal structure device includes a flat top surface layer 123, in figure 1, Cha teaches a horizontal transistor 35a/37a/33/37b/35b and a horizontal structure device with a planarized surface of layer 39,

a transistor device 113/115/117/119/121 formed on top of a substrate, fig. 2A,  
a magnetic tunnel junction device (MTJ, 100) connected to the transistor device through a straight-line connection line 125,

a first conductive line 137 over the MTJ 200 and connected with the MTJ 200,  
a second metal line 141 situated cross perpendicular to the first metal line 137, over the first metal line 137, and separated from the first metal line 137 by an insulation region 139 for jointly generating the combined magnetic field, para. 34.

The difference between the reference(s) and the claims are as follows: Cha teaches two conductive layers 137 and 141 perpendicular to each other in the body of the invention but does not teach that two conductive layer 137 and 141 are formed from

metal. However, Cha teaches in the Background at para.12 and 15 of the same invention that two metal lines 47 and 61 are perpendicular to each other to jointly generate magnetic field for a MTJ device.

In addition, specific coating thickness of metal as claimed are taken to be obvious since these are variables of art recognized importance which are subject to routine experimentation and optimization and discovery of an optimum value for a known process is obvious. In re Aller, 105 USPQ 233 (CCPA 1955). And, even if applicants' modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art, In Re Sola 25 USPQ 433.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Cha's conductive lines with metal lines as suggested by Cha's Background teaching because Cha teaches using two metal lines or conductive lines are perpendicular to each other to jointly generate magnetic field for a MTJ device.

### ***Conclusions***

Applicant's arguments filed July 12, 2004 have been fully considered but they are not persuasive. Applicant contends that instant invention teaches a horizontal structure in figs. 3a-3d. However, there is no teaching in the instant specification and figs. 3a-3a to support the "Horizontal structure device or transistor". In figure 3a-3e of the instant

Art Unit: 2812

invention, it merely teaches a collection of vertical structures 302, 304, 306, 308 with flat surface of layer 310. And, there is not seen "horizontal structure device or transistor" in the instant specification. Cha clearly teaches at figure 1, a horizontal transistor 35a/37a/33/37b/35b and a horizontal structure device with a planarized surface of layer 39. Cha also teaches at fig. 2A, a horizontal structure transistor/device includes layers 121/119/115/117/112 having substantially flat top surfaces. Cha also teaches at fig.2A, a horizontal structure device includes a flat top surface layer 123.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

**Any inquiry of a general nature or clerical matters or relating to the status of this application or proceeding should be directed to the customer service whose telephone number is (703) 308-4357 and Fax number (703) 872-9306.**


Art Unit: 2812

Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. Jey Tsai whose telephone number is (571) 272-1684. The examiner can normally be reached on from 7:00 Am to 4:00 Pm., Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on (571) 272-1679. The fax phone number for this Group is (703) 872-9306.

hjt

10/27/04

A handwritten signature in black ink, appearing to read 'H. Jey Tsai', with a stylized, cursive script.

H. Jey Tsai

Primary Examiner

Patent Examining Group 2800